Impacts of Climate Change in Jharkhand: Examining the Government Responses to Environmental Challenges

A SYNOPSIS
Submitted to the
University Department of Political Science
BINOD BIHARI MAHTO KOYALANCHAL UNIVERSITY, DHANBAD

FOR THE AWARD OF
DOCTOR OF PHILOSOPHY
IN
POLITICAL
SCIENCE BY

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INTRODUCTION

Climate change refers to long term alterations in Precipitation patterns, temperature and other atmospheric conditions on earth. It is a primarily driven by anthropogenic activities, including combustion of fossil fuels and recklessly cutting down of trees results in elevation of Greenhouse gases. Greenhouse gases are responsible for the rise of global temperature by 1.1°C since 1850[1]. The repercussion of climate change extend to biodiversity, agriculture, water resources and human societies worldwide. Tackling this intricate problem necessitates a comprehensive understanding of causes, impacts, and evolution of potent responses and strategies. Acknowledging the necessity of a collaborative global approach to address climate change, the UNCED or the Earth summit, 1992 was a crucial step. Brudtland commission's report first introduced the concept of Sustainable Development' which open the way for further conferences and negotiations on climate change . Various conferences were held after 1992 like Kyoto protocol (1997), IPCC fourth report (2007), etc. that confirmed the severity of climate change on human lives.

Countries are trying to minimize adverse effects of climate change. According to Paris agreement, India pledged to cut it's emission of greenhouse gases by 33 to 35% below 2005 by 2030[2] India is emerging as a powerful country and is coming forward as responsible member of global community. Country is taking effective actions in the direction of climate change and climate justice. Government action plans are the plans or steps which follows the specific step to achieve its specific goals. India's climate change policy i.e. NAPCC was released by the prime minister of India on 13th June 2008[3]. It outlines a national strategy that focuses on the adaptation of climate change and enhance the ecological sustainability of India's development path. India's NAPCC stresses on maintaining high growth rate for increasing living standards of the majority of it's citizens and reducing their vulnerability to the consequences of climate change.

Jharkhand was separated from Bihar in the year 2000. Majority of the population depends on agriculture and allied sectors for its economy. 80% population in Jharkhand are engaged in agriculture. Jharkhand has abundance of mineral resources and it stood first in mica, coal etc.[4] production. Jharkhand's dependency on mining and heavy industries make it a great emitter of

greenhouse gases. Greenhouse gases, specifically carbon dioxide, released from these heavy industries rare response for the rise of temperature. Mining industries are contributing Significantly to the rise of atmospheric carbon dioxide .

Jharkhand, like many regions globally , experiences the effect of climate change. Changes in Precipitation patterns, temperature and adverse weather conditions contribute to various environmental and socio-economic consequences in the state. According to a report, 14 districts of Jharkhand are critically vulnerable to climate change. Districts which are troubled by climate change are Garhwa, Palamu , Chatra, Hazaribagh , Giridih, Bokaro, Godda , Sahebganj, Pakur and Khunti[5]. As per report of research by ICAR , six districts of Jharkhand are vulnerable to climate change effect on agriculture.

ICAR analyzed 18 rural districts of Jharkhand, out of which six districts – Garhwa, Godda, Gumla, Pakur , Sahebganj and West Simbhum are categorized as a high risk prone[5]

After state's formation rapid urban expansion is witnessed. During 2001- 2011, industrial population boom by 32%. The 69.98% of area of Jharkhand falls under desertification and land degradation which is higher in the country. Due to these reasons there is changed in the climatic pattern of Jharkhand. Water shortage and heat wave incidences have increased in the state from 2000 to 2014, the state experienced the highest number of heat waves. Palamu and Garhwa district in particular have been suffering and extended dry spell. Climate change intensifies the social and economic disparities. Vulnerable communities often lacking resources are disproportionately affected , leading to increased poverty and inequality[7].

Climate change is a pivotal issue not only for jharkhand but for the whole world. By the support of United Nation Development Programme (UNDP), Jharkhand state's action plan on climate change i.e. SAPCC is established in 2014.

REVIEW OF LITERATURE

1. Wells (2019)[9], Author delves into the severe consequences of climate change on our planet, addressing both the scientific and human aspects.

2. Shukla (2003)[10], He provides assessment of the impacts, vulnerability and adaptation needs for the key economic and ecological sector of India.

3. Klein(2014)[11] , Author explores the economic and political implications of climate change and argues for transformative societal change.

4. Kolbert(2014)[12], In this book author examines the ongoing biodiversity crisis caused by human activities, including climate change.

5. Ghosh(2016)[13],Author explores the cultural and political challenges of addressing climate changes, highlighting the need for a shift in perspectives.

6. Dyer(2008)[14],: "Climate wars: The fight for survival as the world over heats": Author explores potential geopolitical impacts of climate change, including conflicts over resources.

7. UNDP (United Nations Development Programme)[15] Various Reports, UNDP produces various reports and studies on climate change and renewable energy initiatives in India- UNDP publishes reports on the various issues of climate change and the sustainable development programmes. UNDP promotes and integrated approach to climate change adoption and disaster risk reductions which calls for the whole of Government and whole of society approaches for an enhanced use of climate information for risk reduction.

8. Mc Kibben (2010)[16],Here author discusses the changes already occuring due to alternation in climate condition and suggests ways to develop resilience to a new reality.

9. Sikka (2012)[17], In this book author talks about the global warming and the climate change issues affecting the environment. He mentions the national action plan and climate change 2008 and national policies for integrating energy generation (2008), protecting the environment(2007), agricultural production (2007) and human health(2002) which were the schemes created by the prime ministers council of climate .Author talks about the responses taken by the Indian government to the climatic problems, disaster mitigation and adaptation.

10. Ali and Shah (2017)[18], This article presents a vision that how the climatic problems in agriculture can be addressed and sorted out in the changing scenario.

11. Tigga and Malini B (2014)[19], This talks about changes in the natural environment due to urban industrial growth.

12. Lamtinhol (2016)[20], This article examines the perception of the maltose, a tribal community, living in Sahebganj district, Jharkhand, about climate change its impact and the coping mechanism it has adopted.

13. Dubash (2019)[21], Here the author gives comprehensive overview of changing climatic patterns in Indian context, discussing its impacts, vulnerabilities and potential adaptation and mitigation strategies.

14. Kumar and Narayanmoorthy (2014)[22], This edited volume delves into the specific challenges and suggestions of Climate change on agriculture in India , which might be relevant to understanding the impact on states like Jharkhand.
15. Salih (2009)[23], This book explores the intersection of Climate change and sustainable development providing a broader perspective that can inform discussions on policy and governance responses.

Despite Jharkhand being more than 33% green, the Climate change are beginning to be seen here[24]. Jharkhand needs to focus on both mitigation and adaptation. sustainable agriculture practices, afforestation and efficient management of water are important for mitigating climate change effects. Addressing these challenges requires a multifaceted approach involving local, national and international corporation to mitigate the adverse outcomes of Climate change in Jharkhand.

PROBLEMS TO BE INVESTIGATED

The change in climatic conditions are fueled up by the human activities which is the problem of the whole world. The most vulnerable Nations is adversely affected by the climate change. Climate change contributes to the melting of polar ice caps and glaciers, leading to escalating water lines that risks coastal communities. The increased intensity and frequency of severe weather conditions, such as hurricanes, droughts, and wildfires, are linked to change in climate patterns , impacting communities worldwide. Low rainfall can alter availability of water and agricultural productivity, potentially leading to food insecurity.

In Jharkhand, global warming is impacting the surroundings and communities. Some specific effects include altered precipitation patterns, leading to changes in water availability for agriculture. Erratic rainfall can result in droughts or floods, affecting crop yields and livelihoods. Jharkhand has a significant forest cover, and alternation in climate can harm these ecosystems, affecting biodiversity and the availability of forest resources for local communities. Sustainable agriculture, water management, and forest conservation are essential for combating environmental issues in Jharkhand. Community awareness and adaptation measures are crucial in building resilience against these challenges.

Statement of problems can be summarized as:

- Identifying the adversity of climate change on key sector such as agriculture water resources and biodiversity in Jharkhand.
- Investigate the level of awareness and understanding among the common man in Jharkhand regarding climate change policies.
- Examine weather policies are designed and communicated in a way that is understandable and accessible to diverse segments of the population.
- Identifying important stakeholders and their functions and responsibilities and the extent of public participation in decision making.

OBJECTIVES OF THE RESEARCH

1. To evaluate the extent of climatic outcomes on key sectors such as agriculture, water resources and biodiversity in Jharkhand.
2. To Analyze effectiveness of existing climate change policies and governence structure in addressing and mitigating environmental challenges within the state.

3. To identify factors influencing the resilience or susceptibility of various communities to climate change.
4. To identify key barriers and challenges hindering the implementation of Climate Change policies at the grassroots level in Jharkhand.
5. To examine the alignment between climate change policies in Jharkhand and international frameworks, identifying areas for collaboration and improvement.

HYPOTHESIS

- **Existing climate change policies and governance structures within the state effectively addresses and mitigate environmental challenges, leading to measurable positive outcomes in environmental sustainability.**

  - The climate change is negatively influencing the key sectors such as agriculture, water resources and biodiversity in Jharkhand, leading to noticeable challenges and disruption.

  - The alignment of Jharkhand's Climate Change policies with international Framework correlates with States ability to attract funding and resources for effective implementation.

  - Communities in economically disadvantage area of Jharkhand are more sensitive to climatic conditions because of limited resources and adaptive capacity.

RESEARCH METHODOLOGY

The methodology choosed for the study is Historical, Descriptive and Analytical methods based on primary and secondary data. Primary data will be collected from primary sources like reports, declaration, agenda's, policies, etc. of the Government and various other international treaties and conventions. Field works using questionnaire method and interviews will be conducted.

Secondary data will be assembled from journals, books , websites, articles and commentaries and libraries. Through qualitative analysis various information and data will be collected and analyzed and solutions will be suggested.

SIGNIFICANCE OF THE RESEARCH

Studying the effect of climate change in Jharkhand is essential for better understanding of environmental problems occuring in Jharkhand and how government addresses these Issues. This knowledge helps to formulate effective policies, allocate resources, and implement plan of action to reduce and adjust climate severity, ensuring sustainable development and adaptive in the face of environmental threats. It also aids in fostering informed decision-making and promoting collaboration among various stakeholders to address the alienated hurdles faced by the region.

Furthermore, understanding the climate change impact in Jharkhand is vital for assessing potential socio-economic repercussions, such as impacts on agriculture, water resources, and human health. Government can use this fact to formulate adaptive measures, infrastructure development, and disaster preparedness plans. Additionally, addressing climate change aligns with global environmental goals, fostering regional cooperation and positioning Jharkhand as a responsible participant in the international effort to combat climate change.

This holistic approach contributes to sustainable development and enhances the overall governance framework of the region.

LIMITATIONS AND FUTURE WORK OF THE RESEARCH

Research is limited to availability of up to date data on climate change impact in Jharkhand and it may constrain the depth of the analysis.

Challenges related to research methodologies such as biasness in data collection or the complexity of measuring governance responses, may affect the accuracy of the conclusion.

After studying this, in future one can go with the implementation and evaluation of specific policies of jharkhand and adaptive measures. By the passing time innovative technologies, community based initiatives and policy making might be used to enhance the resilience. Additionally multidisciplinary collaborations with the political stakeholders, environmental scientists and local level initiative will contribute to the holistic understanding of evolving climate scenario and mitigation measures.

TENTATIVE CHAPTERISATION

- Introduction

Chapter 1 : Concept of Climate change and environmental dynamics

Chapter 2 : National and International perspective on climate change : challenges and solution

Chapter 3 : Impacts of government responses to environmental challenges on climate change in Jharkhand

Chapter 4 : State Policies of climate change in Jharkhand

Chapter 5 : Responses of stakeholders towards climate change in Jharkhand

- Conclusion

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